1999P03096

(19) JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **07268605 A**

(43) Date of publication of application: **17.10.95**

(51) Int. Cl **C23C 14/06**
C23C 14/56
C23C 14/58
C23C 28/02

(21) Application number: **06058625**

(22) Date of filing: **29.03.94**

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(54) PRODUCTION OF ALLOYED ZN-MG VAPOR DEPOSITION-COATED STEEL SHEET

(57) Abstract:

PURPOSE: To obtain an alloyed Zn-Mg vapor deposition-coated steel sheet with Fe diffused to the surface of a plating layer and excellent in workability and corrosion resistance.

CONSTITUTION: A continuously traveled steel strip with the surface cleaned is introduced into a vacuum chamber, in a reducing or inert atmosphere, deposited with Mg at $\lesssim$100°C and then with Zn. An alloying heat treatment is applied to the strip immediately after leaving the vacuum chamber at 330-600°C for $\leqq$10sec in an inert atmosphere or in the atmosphere so that the Fe is diffused from the substrate steel to the plating layer surface. The Zn-plated strip is held at 200-400°C for 1-25hr by using a heating furnace independent of the vacuum chamber to apply alloying heat treatment. Otherwise, the strip before Mg vapor deposition is kept at $\lesssim$100°C, the temp. is controlled so that the Zn-deposited strip is kept at 330-500°C, and alloying heat treatment is conducted by the sensible heat of the strip.